FIG. 1

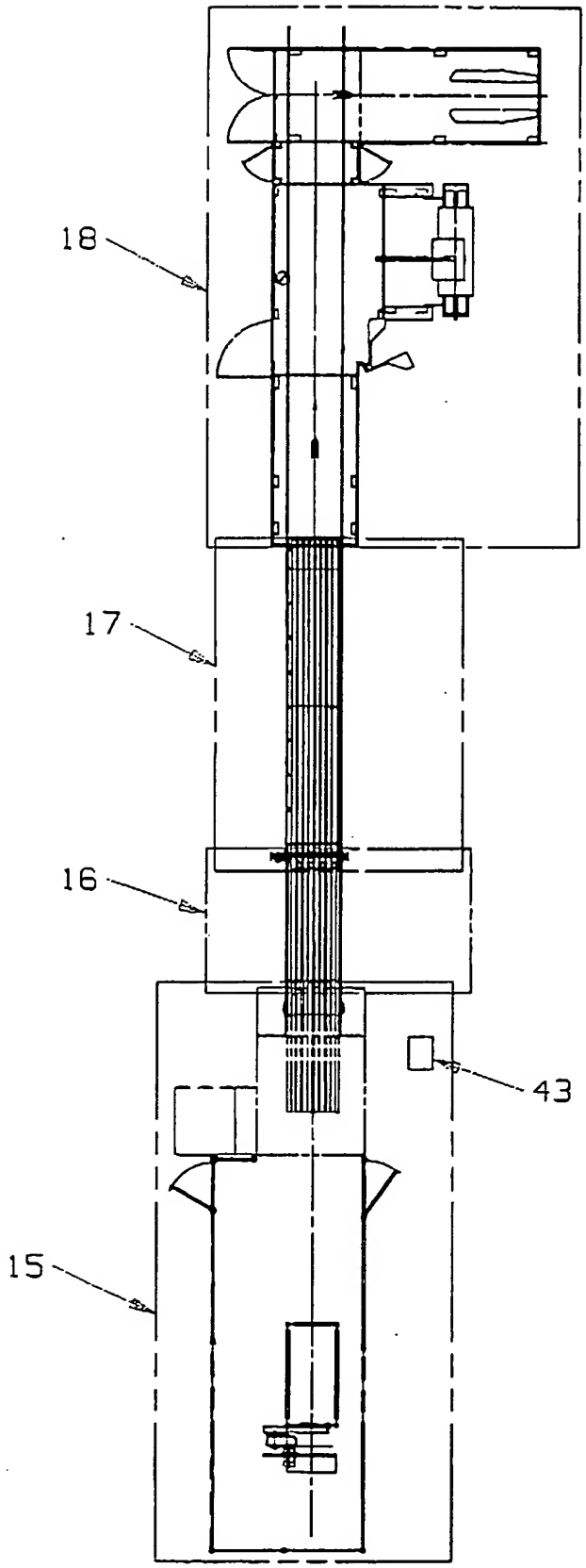


FIG. 2

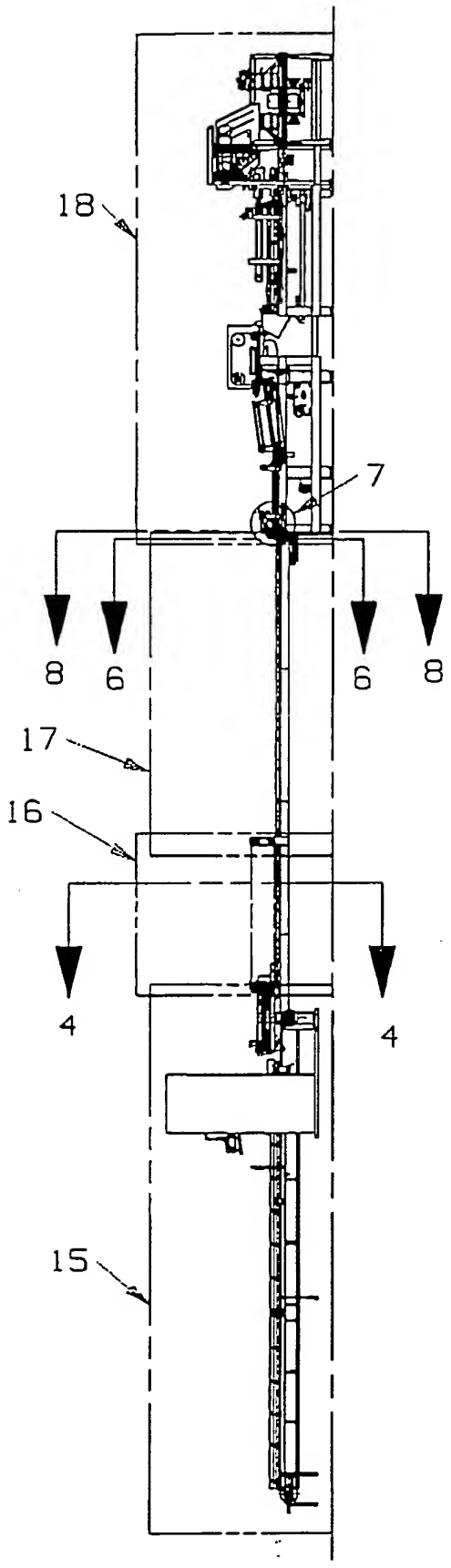


FIG. 3

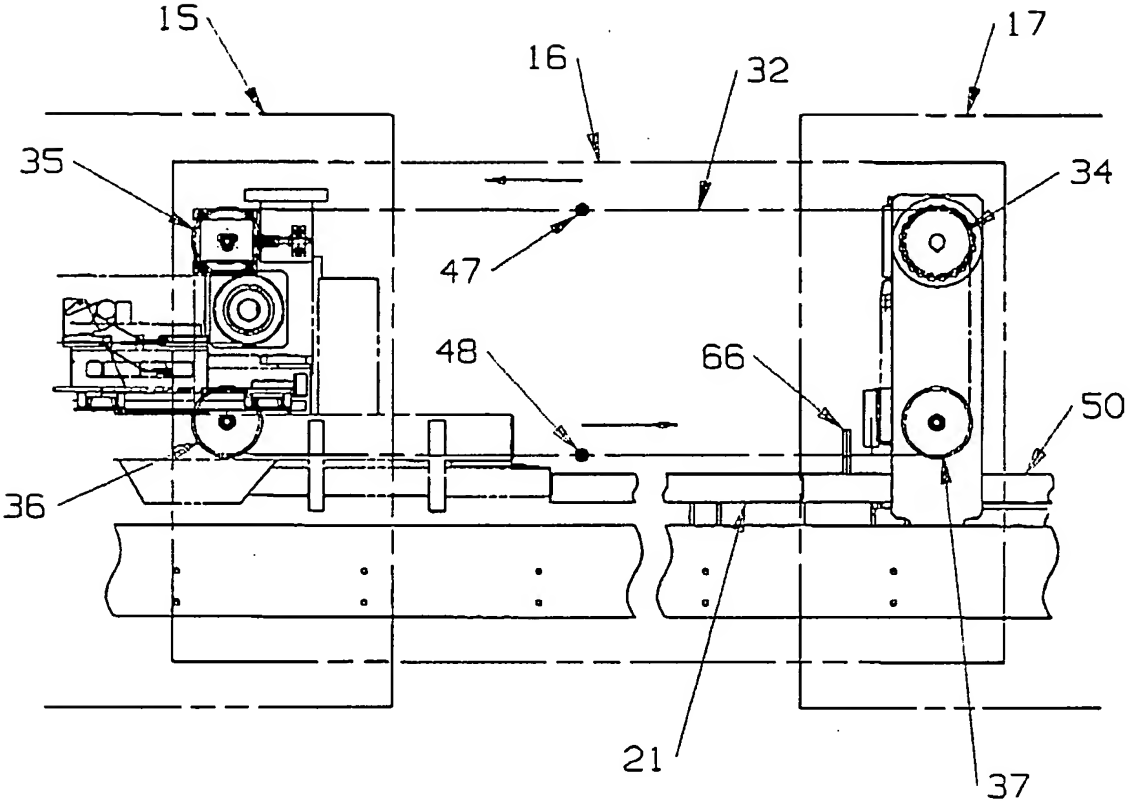


FIG. 4

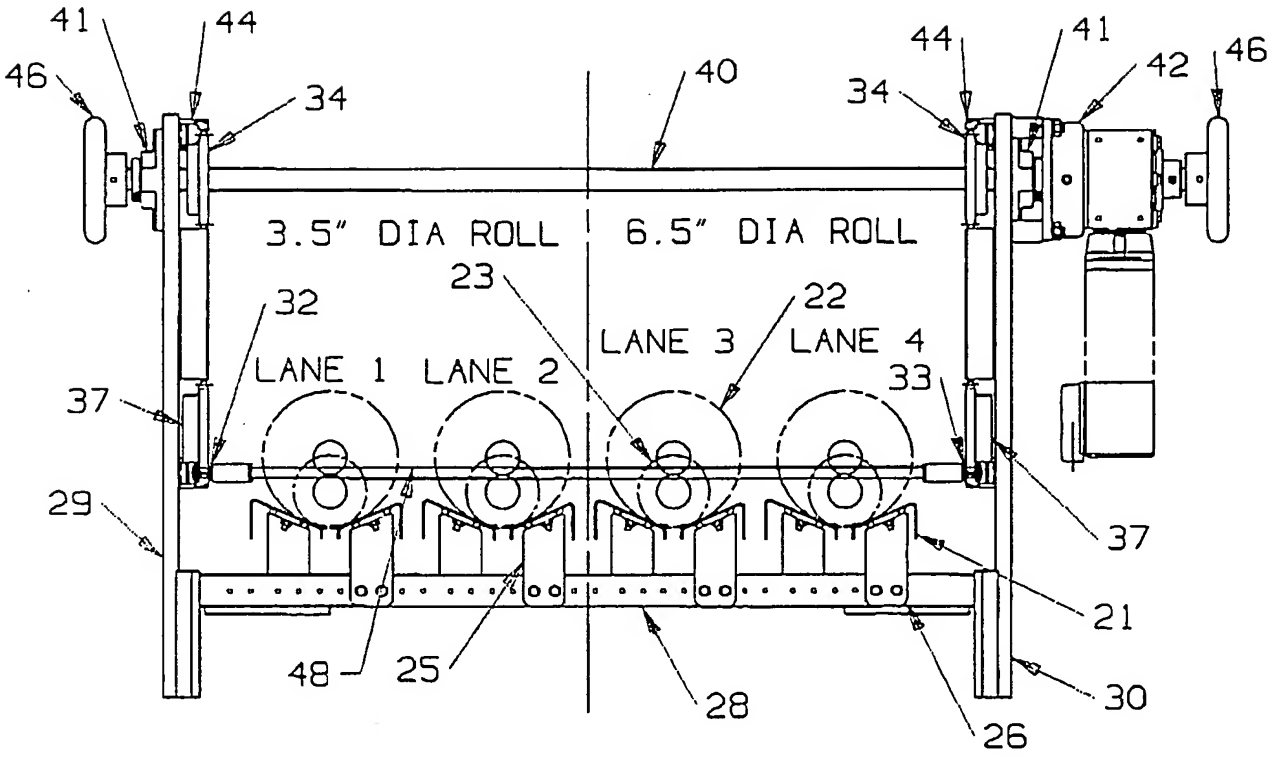

41
44
46
34
40
44
41
42
46
34
3.5" DIA ROLL
6.5" DIA ROLL
23
32
22
LANE 1
LANE 2
LANE 3
LANE 4
33
37
29
37
21
48
25
28
30
26

FIG. 5

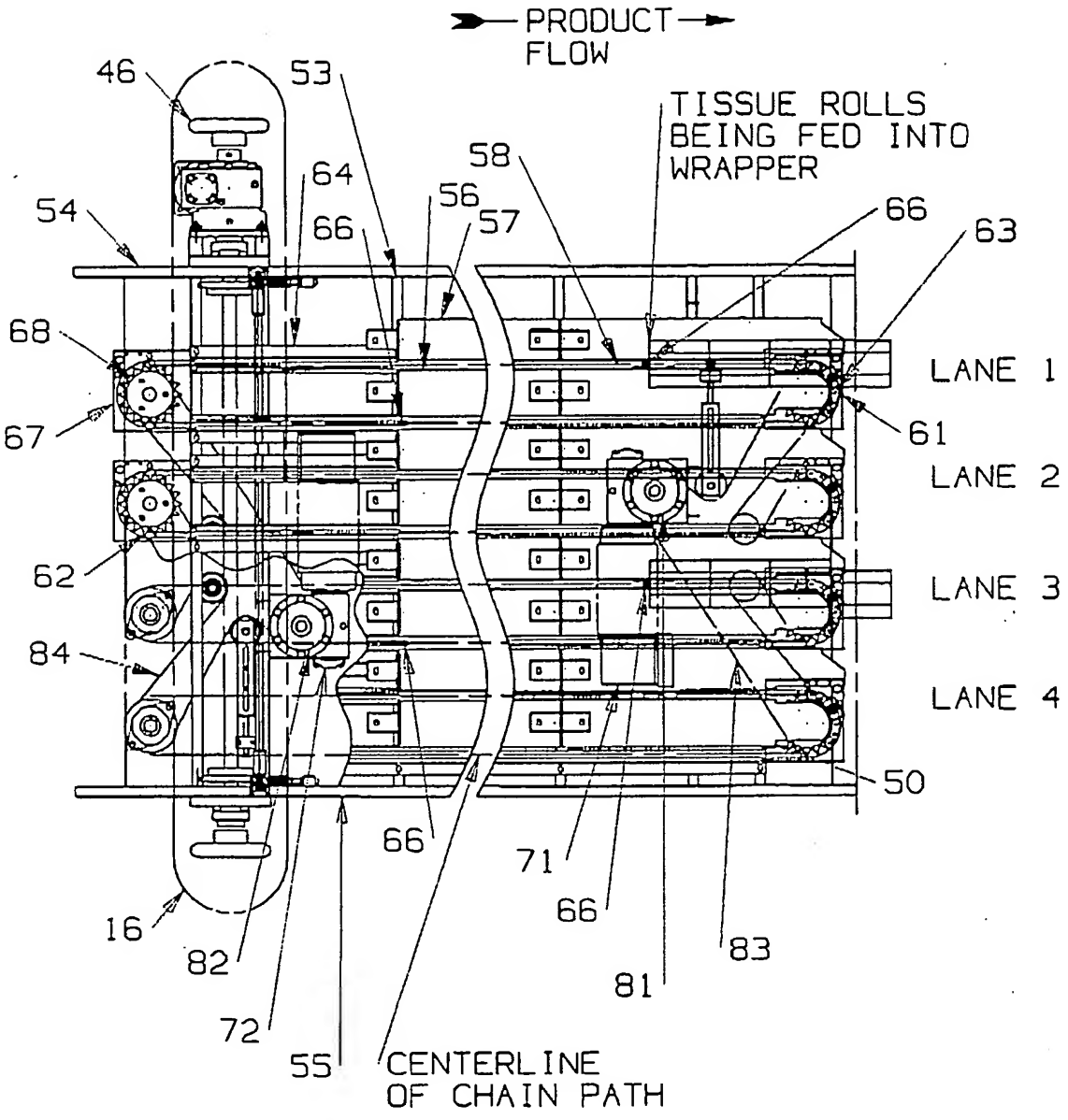

PRODUCT FLOW
TISSUE ROLLS BEING FED INTO WRAPPER
46
53
58
64
56
57
54
66
66
63
68
LANE 1
67
61
LANE 2
62
LANE 3
84
LANE 4
50
66
71
66
16
82
83
81
72
55
CENTERLINE OF CHAIN PATH

FIG. 6

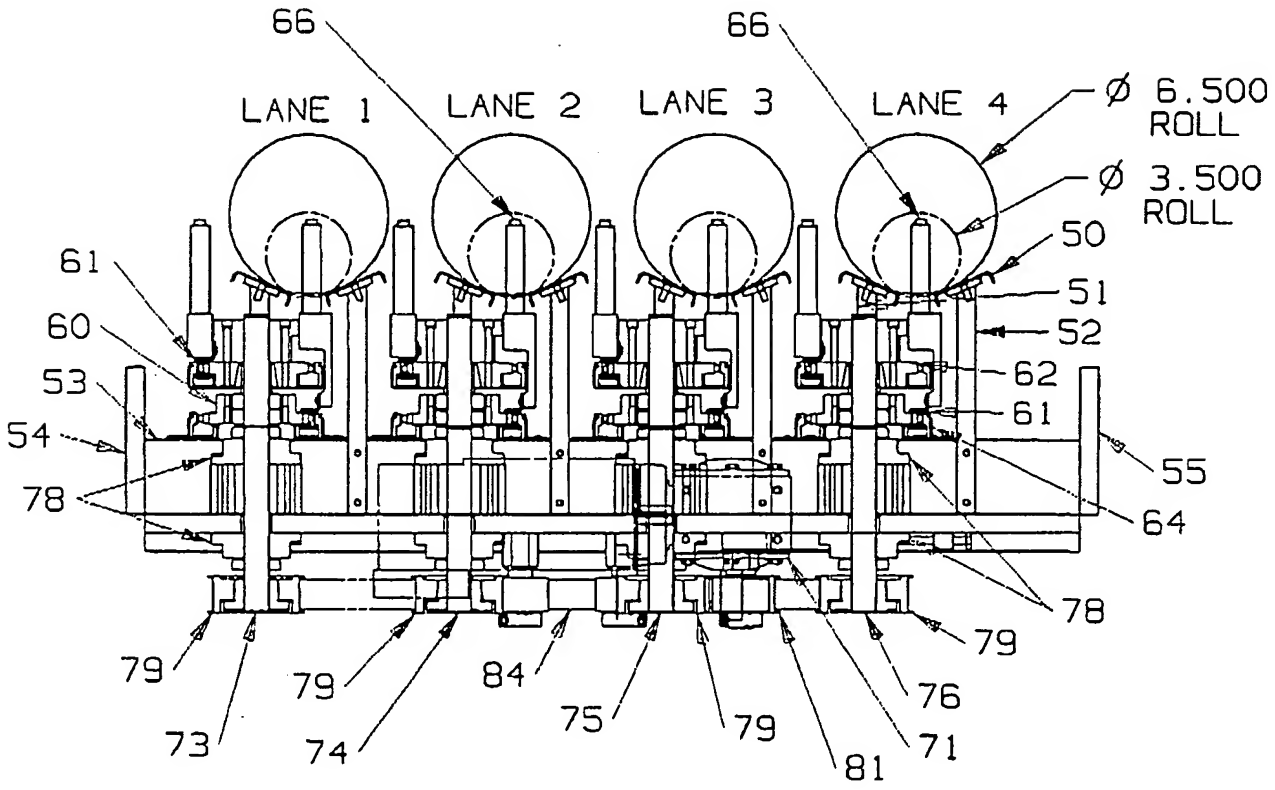

66
66
LANE 1
LANE 2
LANE 3
LANE 4
Ø 6.500 ROLL
Ø 3.500 ROLL
50
51
52
62
61
55
64
78
79
76
71
81
79
75
84
79
74
73
79
78
53
54
60
61

FIG. 7

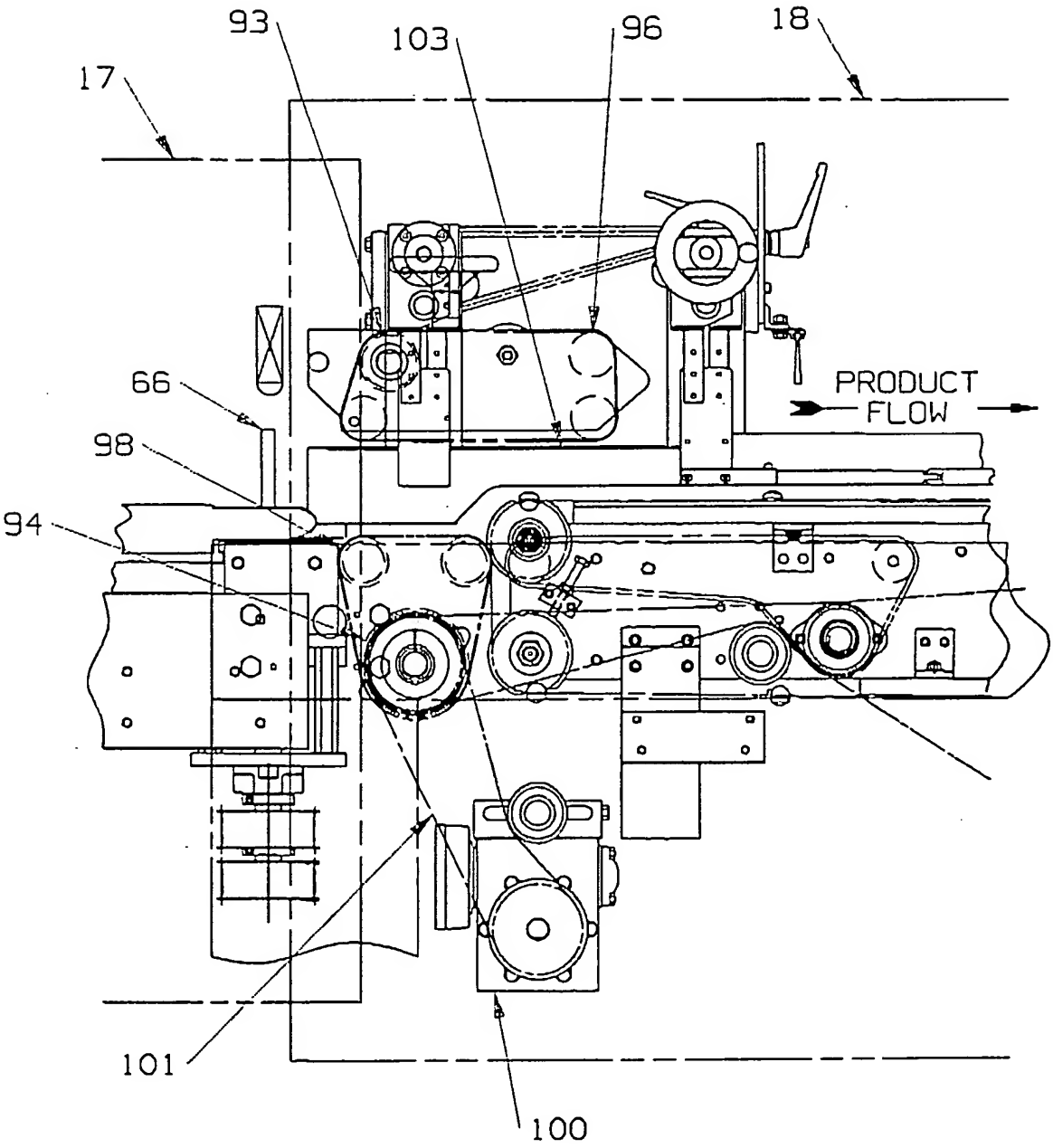


FIG. 8

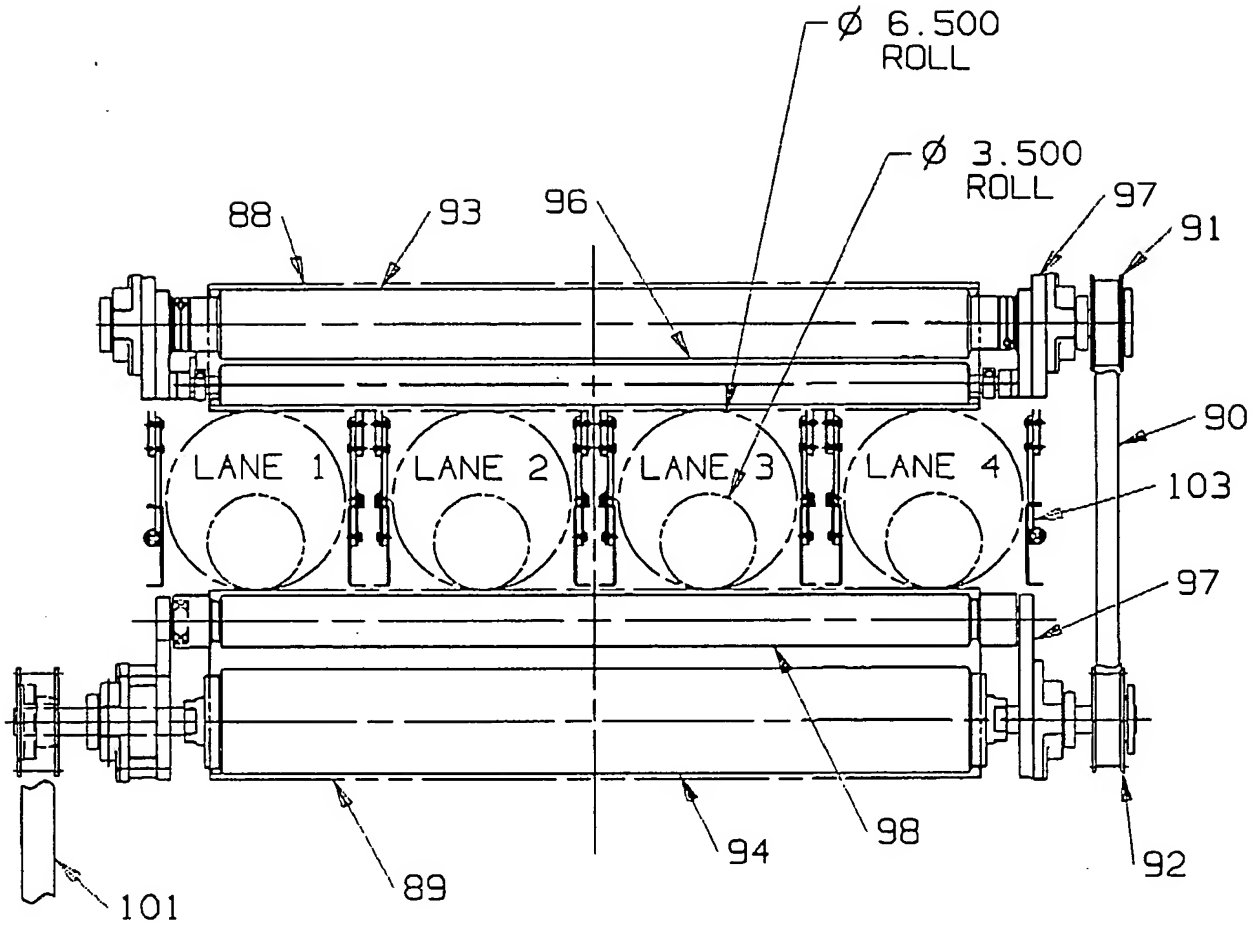

Ø 6.500
ROLL
Ø 3.500
ROLL
88
93
96
97
91
90
LANE 1
LANE 2
LANE 3
LANE 4
103
97
98
94
89
92
101

FIG. 9

4-LANES TO 1-WIDE FORMAT

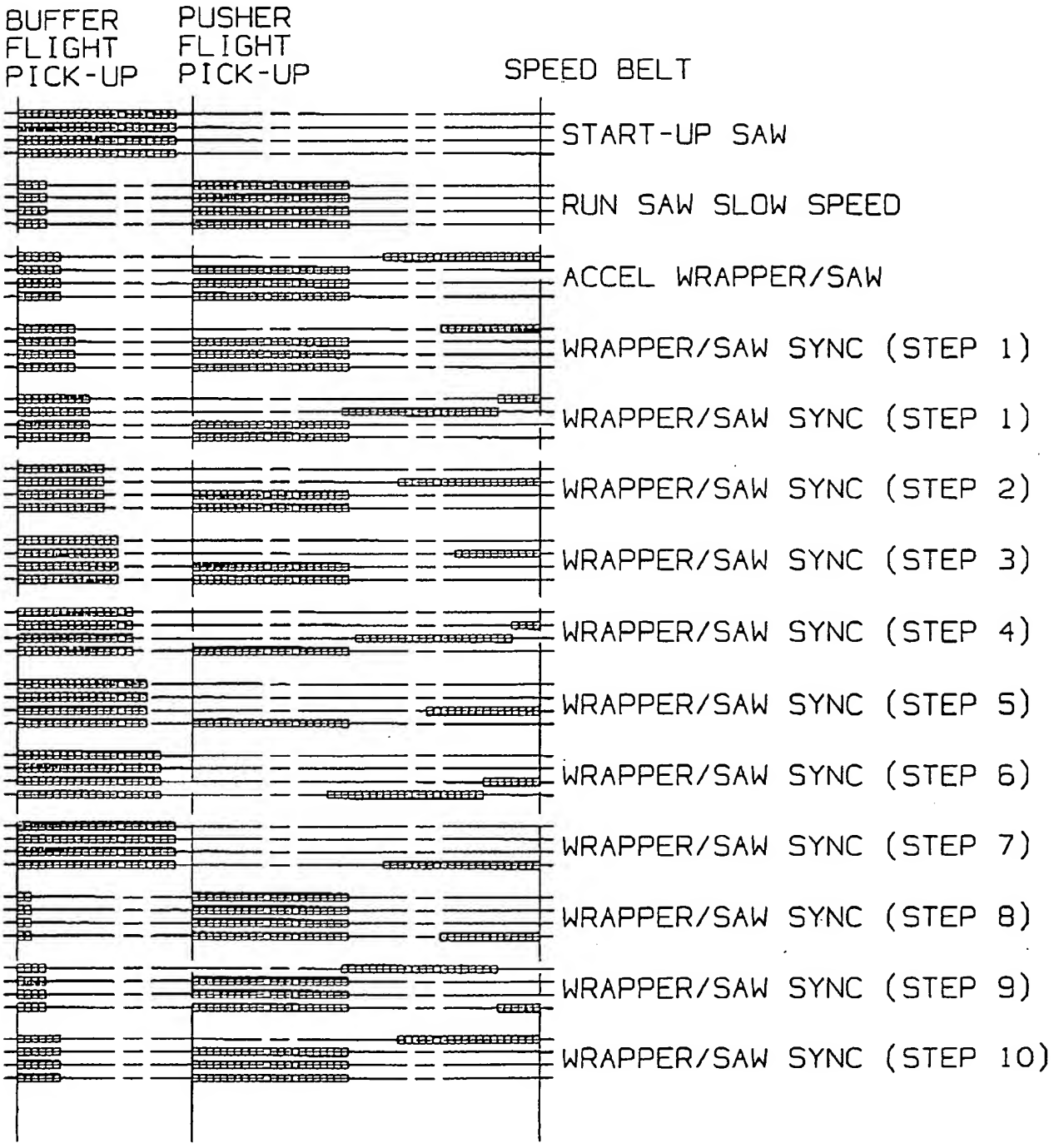


FIG. 10

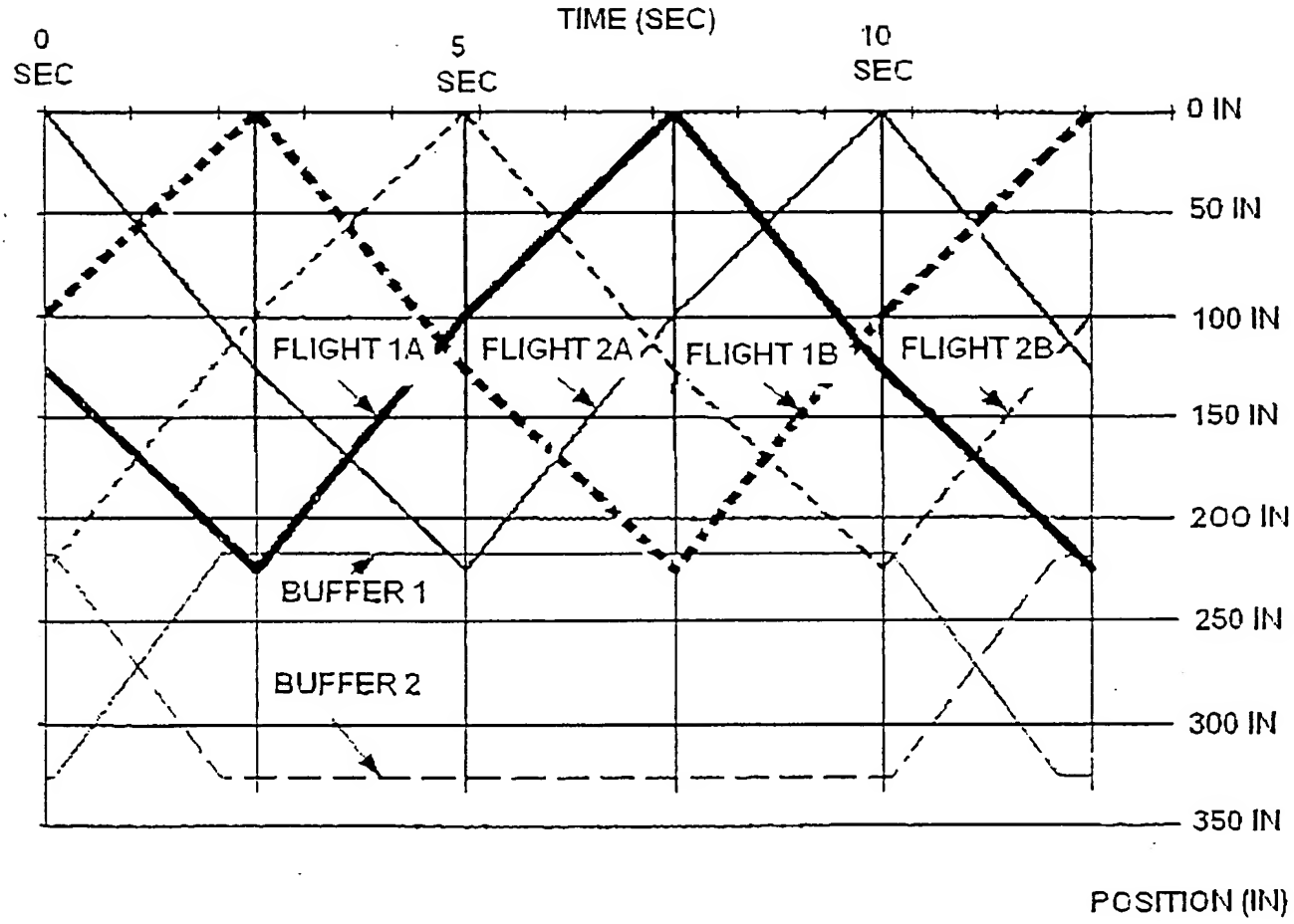

TIME (SEC)
0 SEC
5 SEC
10 SEC
0 IN
50 IN
100 IN
150 IN
200 IN
250 IN
300 IN
350 IN
FLIGHT 1A
FLIGHT 2A
FLIGHT 1B
FLIGHT 2B
BUFFER 1
BUFFER 2
POSITION (IN)

FIG. 11

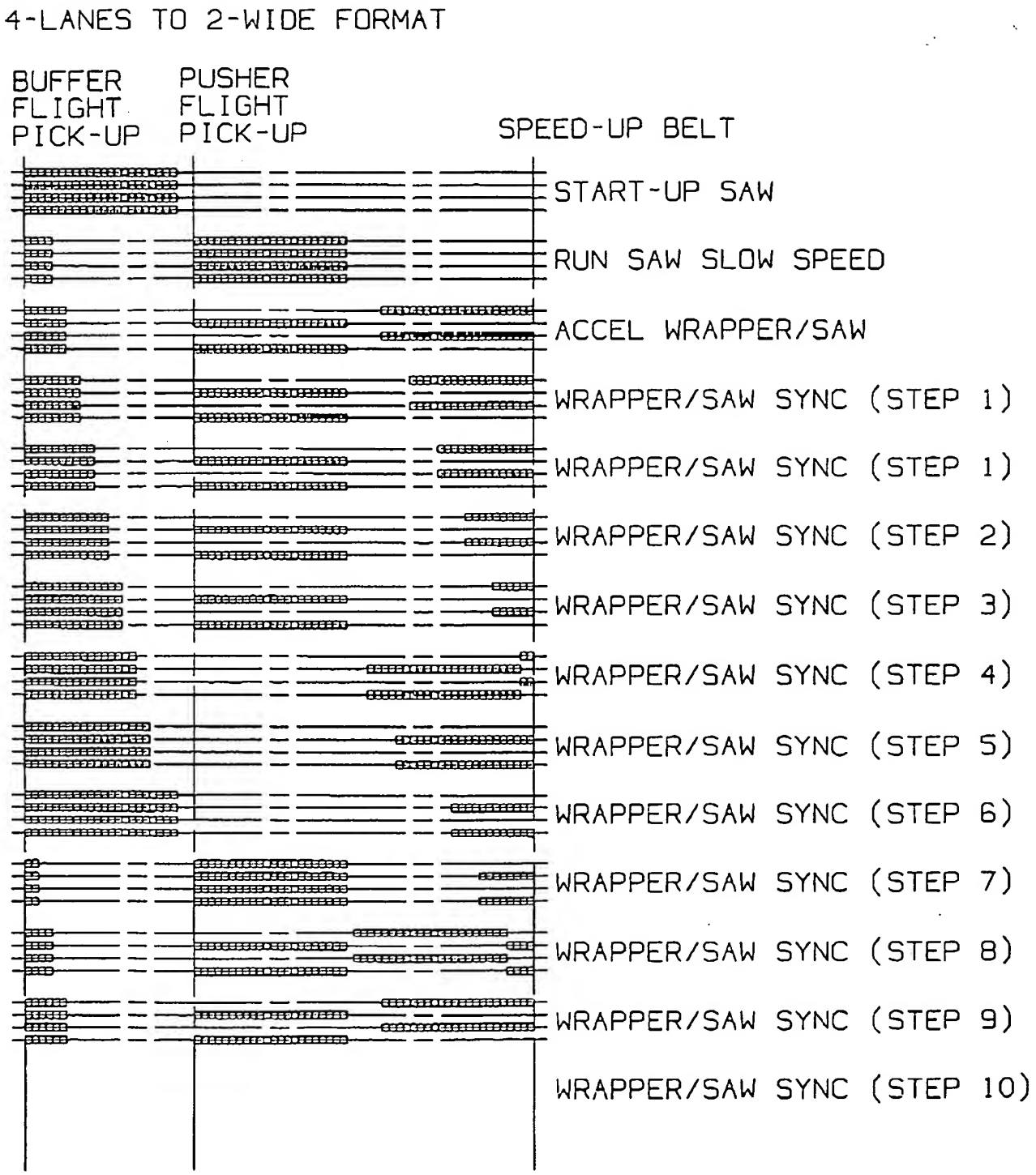
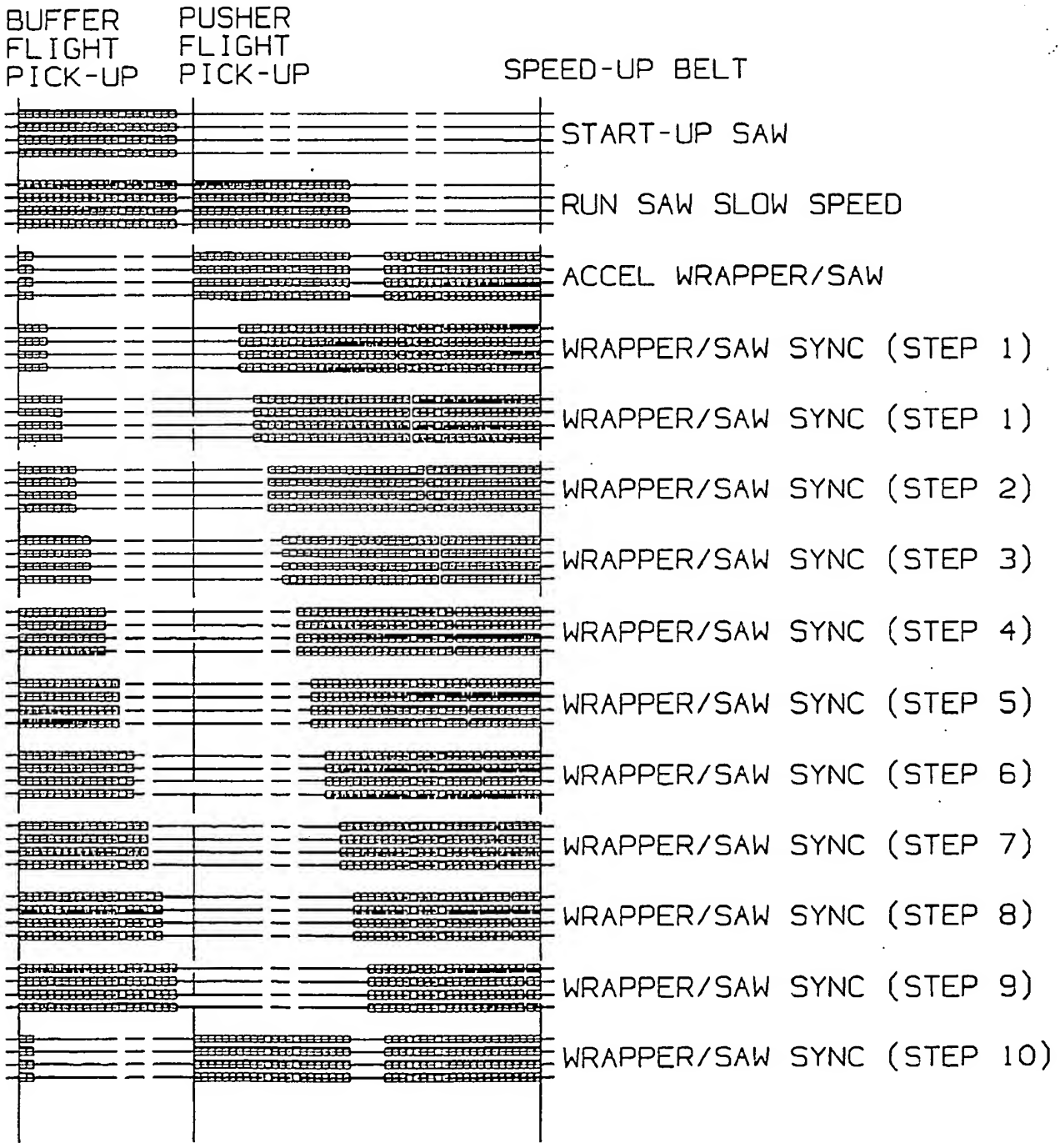

4-LANES TO 2-WIDE FORMAT
BUFFER FLIGHT PICK-UP
PUSHER FLIGHT PICK-UP
SPEED-UP BELT
START-UP SAW
RUN SAW SLOW SPEED
ACCEL WRAPPER/SAW
WRAPPER/SAW SYNC (STEP 1)
WRAPPER/SAW SYNC (STEP 1)
WRAPPER/SAW SYNC (STEP 2)
WRAPPER/SAW SYNC (STEP 3)
WRAPPER/SAW SYNC (STEP 4)
WRAPPER/SAW SYNC (STEP 5)
WRAPPER/SAW SYNC (STEP 6)
WRAPPER/SAW SYNC (STEP 7)
WRAPPER/SAW SYNC (STEP 8)
WRAPPER/SAW SYNC (STEP 9)
WRAPPER/SAW SYNC (STEP 10)

FIG. 12

4-LANES TO 4-WIDE FORMAT OR
3-LANES TO 3-WIDE FORMAT